

Amendments to the Claims

Please add new Claims 39-50 as shown below. The following list of claims replaces all previous claims in the application:

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1-21. (Cancelled)

22. (Previously Presented) A method for allocating bits to encode each frame of an image sequence, each of said frame having at least one object, said method comprising the steps of:

(a) determining a target frame bit rate for the frame; and

(b) allocating said target frame bit rate among the at least one object, wherein said allocating step comprises the step of allocating said target frame bit rate in accordance with a target object bit rate for the at least one object.

23. (Previously Presented) The method of claim 22, wherein said target object bit rate for the at least one object is selected in accordance with a mean absolute differences (Mad) of said object.

24. (Previously Presented) The method of claim 22, wherein said target object bit rate is adjusted in accordance with a measure of a buffer fullness.

25. (Previously Presented) The method of claim 22, wherein said target object bit rate is allocated to code a syntax information, a motion information, and a shape information of the object.

26. (Previously Presented) The method of claim 25, wherein said bit allocation to said shape information of an object is adjusted.

27. (Previously Presented) The method of claim 22, further comprising the step of: (c) generating a quantizer scale for said at least one object in accordance with said target object bit rate.

28. (Previously Presented) The method of claim 27, further comprising the step of:

(d) encoding said at least one object with said quantizer scale.

29. (Previously Presented) Apparatus for encoding each frame of an image sequence, said frame having at least one object, said apparatus comprising:

a motion compensator for generating a predicted image of a current frame;

a transform module for applying a transformation to a difference signal between the current frame and said predicted image, where said transformation produces a plurality of coefficients;

a quantizer for quantizing said plurality of coefficients with at least one quantizer scale; and

a controller for selectively adjusting said at least one quantizer scale for a current frame in response to a target object bit rate for the at least one object, wherein said target object bit rate is derived from a target frame bit rate.

30. (Previously Presented) The apparatus of claim 29, wherein said target object bit rate for the at least one object is selected in accordance with a mean absolute differences (Mad) of said object.

31. (Cancelled)

32. (Previously Presented) A computer-readable medium having stored thereon a plurality of instructions, the plurality of instructions including instructions which, when executed by a processor, cause the processor to perform the steps comprising of:

(a) determining a target frame bit rate for the frame; and

(b) allocating said target frame bit rate among the at least one object,-wherein said allocating step comprises the step of allocating said target frame bit rate in accordance with a target object bit rate for the at least one object.

33. (Previously Presented) The computer-readable medium of claim 32, wherein said target object bit rate for the at least one object is selected in accordance with a mean absolute differences (Mad) of said object.

34. (Previously Presented) The computer-readable medium of claim 32, wherein said target object bit rate is adjusted in accordance with a measure of a buffer fullness.

35. (Previously Presented) The computer-readable medium of claim 32, wherein said target object bit rate is allocated to code a syntax information, a motion information, and a shape information of the object.

36. (Previously Presented) The computer-readable medium of claim 35, wherein said bit allocation to said shape information of an object is adjusted.

37. (Previously Presented) The computer-readable medium of claim 32, further comprising the step of:

(c) generating a quantizer scale for said at least one object in accordance with said target object bit rate.

38. (Previously Presented) The computer-readable medium of claim 37, further comprising the step of:

(d) encoding said at least one object with said quantizer scale.

39. (New) The method of Claim 22, wherein said target frame bit rate is determined from a remaining number of bits for the image sequence, a number of remaining frames in the image sequence, and/or a number of bits encoding a previous frame.

40. (New) The method of Claim 22, further comprising adjusting said target object bit rate in accordance with a buffer fullness measure.

41. (New) The method of Claim 22, comprising recursively adjusting said target frame bit rate by a polynomial regression process.

42. (New) The method of Claim 22, further comprising:

estimating a complexity of a type of picture;

deriving a predicted number of bits to code the frame from the estimated picture complexity; and

calculating a quantizer scale for the frame in accordance with the complexity measure.

43. (New) The method of Claim 22, further comprising encoding the frame.

44. (New) The method of Claim 22, wherein said target object bit rate for the at least one object is selected in accordance with mean absolute differences (MAD) of said object.

45. (New) The method of Claim 44, further comprising producing said MAD for the object from a sum of absolute differences (SAD) of the pixels for the object divided by the number of pixels in the object.

46. (New) The method of Claim 45, further comprising determining the absolute difference between pixel values in the original image and the corresponding pixel values in the predicted image for pixels in the object.

47. (New) The method of Claim 22, further comprising determining whether said target object bit rate is sufficient to code syntax information, motion information and shape information for said object.

48. (New) The method of Claim 47, further comprising incrementally or decrementally changing a number of bits allocated for shape coding.

49. (New) The method of Claim 47, further comprising increasing the target object bit rate when it is smaller than that necessary to code syntax information, motion information and shape information for the object in the previous frame, or decreasing the target object bit rate when it is greater than that necessary to code syntax information, motion information and shape information for the object in the previous frame.

50. (New) The method of Claim 22, wherein said at least one object comprises a plurality of objects.